



# Children's Mercy Hospitals and Clinics

2005 Winner of EPA's National Environmental Leadership Award in Asthma Management



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Dr. Jay Portnoy and staff from Children's Mercy accept the 2005 National Environmental Leadership Award from Jeff Holmstead, Assistant Administrator for the Office of Air and Radiation.



Children's Mercy Hospitals and Clinics successfully promote control of environmental triggers through case management, asthma counseling, home walkthroughs, and provider education, resulting in reduced use of high-cost medical services and improved quality of life for its asthma members.

## Children's Mercy Hospitals and Clinics Kansas City, Missouri

### Snapshot

- ▶ Non-profit hospitals and clinics covering 9 counties
- ▶ Children's Mercy owns a Medicaid managed care plan, Children's Mercy Family Health Partners (CMFHP), with 45,000 members
- ▶ CMFHP's network has 2,400 providers and 31 hospitals
- ▶ 16.8 percent of children in CMFHP plan have asthma
- ▶ 65 percent of CMFHP members participating in the asthma program are black, 27 percent are white, 4.7 percent are Hispanic, and 2.3 percent list themselves as other races
- ▶ Children's Mercy is contracted by CMFHP to run 3 interdependent asthma management programs
- ▶ 3-part comprehensive asthma management program has been in place since 2001

Children's Mercy Hospitals has three complementary asthma programs. First, it trains primary care providers at affiliated clinics in asthma diagnosis and management to ensure providers are following up-to-date guidelines on asthma management. In particular, the education component encourages providers to develop an asthma action plan for each asthma patient. Second, Children's Mercy enrolls members with severe asthma in a case management program; these members also meet with an asthma counselor who addresses management of indoor environmental triggers. Third, if indoor triggers seem to be a serious problem, enrollees may be eligible for home visits that include technical inspections of plumbing and ventilation systems, along with collection of environmental samples. Through its environmental assessments, Children's Mercy is attempting to correlate improvements in the presence of triggers and asthma severity with home modifications and repairs. These programs are further described below.

Children's Mercy is contracted by Children's Mercy Family Health Partners (CMFHP) to run three interdependent asthma management programs for CMFHP members. Dr. Jay Portnoy, chief of the allergy, asthma, and immunology section at the hospital, noticed in the mid 1990s that some members who were following their medication requirements were not

experiencing an improvement in the severity of their asthma symptoms. In addition, 5 percent of CMFHP members were responsible for 60 percent of asthma-related claims. Dr. Portnoy realized a more comprehensive approach that included education and addressed environmental triggers was necessary. "The overall goal of the asthma disease management program is to empower families to understand and demand good health care, enable providers to give that care, and to increase access to community resources," Dr. Portnoy says.

### The Asthma Management Program

Children's Mercy's asthma management comprises three programs to educate primary care physicians; provide education and case management to members with asthma; and address environmental factors affecting members' asthma. The first program, **Kansas City Children's Asthma Management Program** (KC CAMP), is an education program for primary care providers at Children's Mercy-affiliated clinics. KC CAMP was begun with a grant from the Robert Wood Johnson Foundation. Staff at clinics that have the largest percentages of CMFHP members receive 8 weeks of on-site training from a team of certified asthma educators (respiratory therapists) in asthma diagnosis and assessment, environmental management of triggers, and guidelines for treatment. This training helps primary care providers better educate their patients in the basics of asthma management. It has also helped to make the delivery of asthma care more consistent from practice to practice, an outcome that CMH believes to be a "tremendous benefit." Providers are reimbursed for the time they spend developing medication action plans for and reviewing the plans with CMFHP members. Providers generally develop action plans for non-CMFHP members as well, although they may not be reimbursed by other insurers. Asthma educators have also developed a CD-ROM to be used for review and for training new providers. The asthma educators' evaluations have shown that providers continued to retain the material taught during training one year after participating in KC CAMP.

The second program, **Take Action Against Asthma Program** (TAAAP), works with CMFHP members who have visited the emergency department or called a nurse triage hotline for an asthma attack. TAAAP was originally funded by a Centers for Disease Control and Prevention grant. This program's approach is based on the approach

used in the National Cooperative Inner City Asthma Study conducted in the 1990s.<sup>1</sup> In TAAAP, asthma case managers, who are social workers, work with patients during and after hospitalization and after emergency department visits to answer questions, determine the need for education or other resources, and manage care during hospitalization. The case managers also administer a "healthy homes" questionnaire to determine whether environmental triggers need to be addressed. Based on the results, they may refer members to environmental specialists, as described below, or to resources such as environmentally-safe cleaning supplies, air conditioners, vacuums, or replacement bedding.



In addition, asthma counselors, who are also social workers, provide individual education on self-management of asthma, as well as separate group classes for parents and children. Meetings may take place at the hospital, libraries, community centers, members' homes, or other locations. The asthma counselors also address psychosocial factors that can affect patients' ability to manage their asthma. For instance, they may refer members to programs addressing housing concerns or to nonprofit organizations for other problems.

The third program, the **Environmental Health Program**, works with enrollees to address environmental factors affecting their asthma. Based on the results of the healthy homes questionnaire, the community liaison, a respiratory therapist, may call the member or his or her caregiver to get more information. The liaison may work with the family over the phone or at the hospital to discuss ways to lessen exposure to environmental triggers, or if necessary, may request an environmental assessment of the enrollee's home to be conducted by a specialist.

The assessment includes a visual inspection of mechanical systems such as heating, cooling, ventilation, plumbing, and moisture control (including gutters) systems. The specialist also conducts a walkthrough to note visible problems with air quality, allergens and dust, moisture control, chemical exposure, and safety. Finally, the specialist takes environmental samples.

<sup>1</sup>Evans R 3rd, Gergen PJ, Mitchell H, Kattan M, Kercksmar C, Crain E, Anderson J, Eggleston P, Malveaux FJ, Wedner HJ. A randomized clinical trial to reduce asthma morbidity among inner-city children: results of the National Cooperative Inner-City Asthma Study. *Journal of Pediatrics* 1999 September; 135(3):332-8

The liaison then mails the member's family a report with the sampling results, the specialist's observations, and an environmental action plan. The action plan discusses steps for reducing exposure to triggers, such as removing carpeting or improving ventilation. The liaison follows up with phone calls to assist families in implementing the plan. School districts have contracted with the Environmental Health Program to assess schools and daycare centers. The environmental specialist also is present on designated days at Children's Mercy asthma/allergy/immunology clinics to meet with members. This program is available free to CMFHP members. Non-members must be referred by their primary care providers; if insurance does not cover the assessment, Children's Mercy will pay the full cost. Historically, commercial HMOs and PPOs have been reluctant to cover assessments.

### Tracking and Targeting Patients for Interventions

In order to effectively use limited resources, Children's Mercy Family Health Partners targets its intensive interventions to those who need it most. Members are assigned to one of five categories. The number of members in each stratum changes constantly because status changes are recorded in real time.

- ▶ Stratum 1 includes those who may have or may develop asthma based on medical history but who have not yet been diagnosed. These members are identified based on a screening for asthma medication prescriptions or related diagnoses (e.g., bronchitis), and are tracked to ensure earlier diagnosis and treatment should asthma develop.
- ▶ Stratum 2 includes those with a diagnosis of asthma. They receive training in how to follow an action plan for their medication, where the dose and medicine required change based on severity of symptoms. Their providers are reimbursed for developing asthma action plans once they have completed the in-office intervention.
- ▶ Stratum 3 members, who have persistent asthma, as defined by National Institutes of Health Guidelines, receive one-on-one sessions with a TAAAP asthma counselor.
- ▶ Stratum 4 members use hospital services frequently (based on a utilization score of 3.0 or more, where emergency department visits are worth 1 point and hospitalizations 2 points), so they work with an asthma case manager in addition to a TAAAP counselor. In some cases they may get environmental assessments. Stratum 4 members consist of the top 1.5 percent of utilizers.

- ▶ Stratum 5 members are in the top 0.4 percent of frequent users; they qualify for automatic home inspections and meetings with environmental specialists.

Utilization scores are constantly recalculated, so if a member goes 6 months without an emergency department visit or hospitalization, his or her score drops to zero, and the member may move to a different stratum.

In addition to stratification and utilization scores, Children's Mercy's asthma database contains data from each enrollee's asthma action plan. Providers submit a copy of each plan to get reimbursed for the time spent reviewing it with their patients. The action plan has the patient's prescription plan; asthma counselors are able to check the prescription against the fill rate.

### Results Achieved by the Asthma Management Program

The number of members diagnosed with asthma has increased as primary care providers learn to distinguish asthma from other illnesses. In addition, 2,500 enrollees now have asthma action plans (when KC CAMP started, action plans were nonexistent).

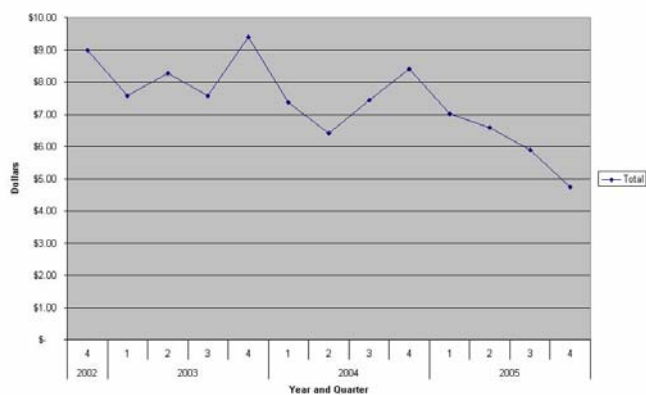
The asthma management program has resulted in significant improvements in health among CMFHP members with asthma. The number of members requiring high-cost services declined from 300 to 200 in the first three years of the program. Emergency department visits declined 40 percent from 10 per 1,000 members to six per 1,000 members during the same period and have since declined further to 2 per 1,000 members. Hospitalizations decreased more than 50 percent, from 2 per 1,000 members to less than 1 per 1,000 members, and this rate has for the most part held steady.

Qualitative improvements include improved quality of life in members responding to quarterly quality of life surveys in the year after enrolling in asthma management programs. Primary care providers participating in focus groups also felt that, as a result of their participation in KC CAMP training, they were able to provide better care and education to their patients, often reducing the need for referrals to specialists. Providers noted that patients then seemed more receptive to asthma self-management practices.

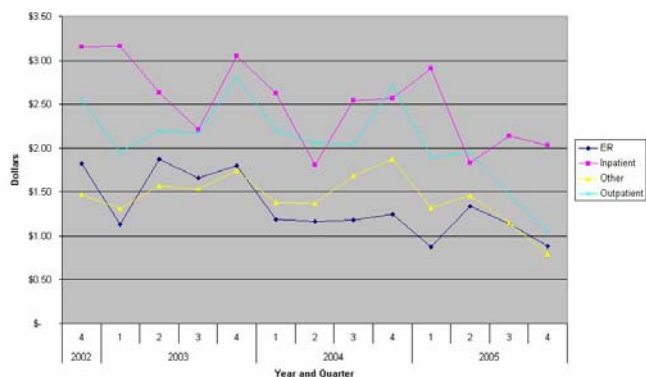
CMFHP has noted a 35-percent decrease in the cost per claim for asthma. The cost per member with asthma has declined as well. Figure 1 shows the overall decrease in cost per member since 2002; Figure 2 shows a breakdown of how costs for different types of claims have changed over the same period. (The "Other" category in figure 2 includes

laboratory charges, home care visits, ambulance services, psychiatric visits, and other such services.)

**Figure 1. Cost per Asthmatic per Month (One Year Moving Average)**



**Figure 2. Cost per Asthmatic per Month by Place of Service (One Year Moving Average)**



In addition, although the asthma management programs were originally funded by grants, they are now self-sustaining. Increased program costs are offset by savings achieved through lower usage of high-cost medical services and lower costs per claim.

### Scientific Evaluation of Home Assessments

Children's Mercy and its partner, the Healthy Homes Network of Greater Kansas City, are the recipients of a three-year grant from the U.S. Department of Housing and Urban Development. Children's Mercy and Healthy Homes Network are conducting a scientific study to determine whether environmental interventions are effectively reducing asthma symptoms and trigger levels. Children with asthma get free health assessments and environmental assessments of their homes; the Healthy Homes Network may spend up to \$2,000 per home on interventions. Investigators measure levels of allergen and particle concentrations, humidity, and gases pre- and post-home intervention to determine

whether the environment is different after the intervention. If so, CMH then wants to show that the environmental change results in a health improvement. The study also includes collection of health, spirometry, and quality of life data, both before and after the interventions. As members are enrolled in the assessment program, CMH will collect baseline information; perform the intervention; allow time for the effects to manifest; and then do follow-up assessments and data gathering.

### Community Involvement

In addition to the work it does with the CMFHP membership, Children's Mercy's Environmental Health Program is involved with community outreach on asthma and indoor air quality. Staff from the Environmental Health Program are members of local asthma coalitions and air quality boards. They have also developed an outreach strategy for targeting different audiences. Asthma educators participate in local health fairs and conferences and provide training on environmental trigger reduction and spirometry.

**"The overall goal of the asthma disease management program is to empower families to understand and demand good health care, enable providers to give that care, and to increase access to community resources."**

**Dr. Jay Portnoy**

For instance, Children's Mercy collaborated with providers to conduct provider-sponsored health fairs, ensuring that all CMFHP members with asthma were invited. Asthma educators conducted asthma screenings at provider offices and providers wrote asthma action plans. "The results showed that 20-30 asthma action plans could be written in a single morning or afternoon," says Dr. Portnoy. In 2004, Children's Mercy staff cosponsored an indoor environment conference for health care providers, school officials, and public health workers. Currently, they are planning a similar conference that will include events designed for the general public.

### Lessons Learned

The Environmental Health Program has grown over time as the environmental specialists have become more skilled at performing environmental assessments. They now have a better idea of what data to collect and have learned to

## Getting Started

- ▶ Determine what kind of home visit program you want. A specialist such as an industrial hygienist may be best able to identify and address structural or technical problems that cause mold, for example. However, such programs may be more expensive, especially if they include environmental sampling.
- ▶ Determine how to follow up after a home visit. For example, decide whether there will be additional visits or phone calls.
- ▶ Apply for a grant if you are not-for-profit. A grant can help you get your program off the ground. Once you show the program is cost-effective, plan management may be more willing to continue the program when the grant ends.
- ▶ Build incentives into your plan. Reimburse providers for time they spend developing asthma action plans and educating patients.

develop hypotheses, assess those hypotheses, and interpret the results of their assessments. They have developed tools, such as the healthy homes questionnaire and the

environmental assessment worksheet, to track symptoms and potential triggers. Currently, it is difficult to isolate the extent to which improvements in asthma symptoms are due to asthma education, case management, or interventions in the home. With the Healthy Homes study described above, Children's Mercy hopes to determine the effect of home interventions on asthma.

Children's Mercy believes that its asthma management approach is relevant to treatment of other health problems. The hospital is therefore creating a new department, the Department of Health Management, which will use the same principles of provider training, counseling for patients, and home and lifestyle assessments to treat problems such as obesity and attention deficit hyperactivity disorder. "At the heart of the new department is the innovative approach of providing resources and education directly to medical service providers at the health plan level," says Dr. Portnoy.

Children's Mercy has shown that it can be cost-effective to provide intensive services for chronic diseases on a targeted basis. Such services result in better health and reduce the need for high-cost emergency services.

For more information on the Children's Mercy asthma program, contact Candace Ramos, Community Health Educator, at [clramos@cmh.edu](mailto:clramos@cmh.edu) or (816) 983-6806.